REMARKS/ARGUMENTS

Claims 1, 2, 4-8, 10-14 and 16-20 are currently pending. Claims 21-26 are new. Applicants submit that no new matter has been inserted into the application as a result of these amendments. Claims 1, 2, 4-8, 10-14 and 16-26 will remain pending after entry of this amendment.

Claim 19 was objected for various informalities.

Claims 1, 2, 4, 7, 8, 10, 13, 14, and 16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application Publication No. 2003/0110263 to Shillo (hereinafter "Shillo") in view of U.S. Patent Application Publication No. 2004/0205206 to Naik et al. (hereinafter "Naik") and further in view of U.S. Patent Application Publication No. 2003/0131098 to Huntington et al. (hereinafter "Huntington").

Claims 5, 6, 11, 12, 17 and 18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Shillo in view of Naik and further view of Huntington and in further view of U.S. Patent Application Publication No. 2003/0135385 to Karpoff (hereinafter "Karpoff").

Claims 19 and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Shillo in view of Naik and further view of Huntington and in further view of Karpoff and in further in view of U.S. Patent Application Publication No. 2003/0236790 to Honmura et al. (hereinafter "Honmura").

Applicants respectfully request reconsideration of the claims in view of the remarks below.

Priority Claim

The Office Action indicates that Applicants have failed to file a certified copy of Japanese Patent Application No. 2003-195451.

Applicants would like to draw the Examiner's attention to the certified copy of Japanese Patent Application No. 2003-195451 received by the U.S. Patent and Trademark Office on July 16, 2007. Accordingly, Applicants submit that the requirements of 35 U.S.C. §119(b) have been satisfied.

Claim Objections

Claim 19 was objected to for various informalities. Applicants have amended claim 19 and respectfully request that the object to claim 19 be withdrawn.

Rejections under 35 U.S.C. §103

Claims 1, 2, 4, 7, 8, 10, 13, 14, and 16

Claims 1, 2, 4, 7, 8, 10, 13, 14, and 16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Shillo in view of Naik and further in view of Huntington.

Applicants submit that the combination of Shillo, Naik and Huntington fails to suggest or disclose all of the features recited in claims 1, 2, 4, 7, 8, 10, 13, 14, and 16. For example, claim 1 recites, in part:

> said management server judges whether data to be written in said storage apparatuses is the high-priority data or the low-priority data on the basis of a write request of data from one of said plurality of servers and keeps a judgment result and position information of storage areas in which said data is written; and
>
> said management server being responsive to an area assignment instruction of storage areas exceeding unassigned areas received from one of said plurality of servers to release at least part of said assignment areas of other servers as unassigned areas and assign released areas to one of said plurality of servers, wherein upon receiving an area assignment instruction, the management server judges whether (i) a size of the unassigned areas exceeds a size of the storage areas specified by said area assignment instruction, (ii) a total size of the unassigned areas and unused areas exceeds the size of the storage areas specified by said area assignment instruction, or (iii) a total size of the unassigned areas, the unused areas and storage areas having stored low-priority data exceeds the size of the storage areas specified by said area assignment instruction, and when the condition (iii) is met, said management server releases at least part of storage areas in which the low-priority data is stored, of the assignment areas of other servers as unassigned areas and assigns at least areas to one of said plurality of servers.

Applicants submit that Shillo, Naik, and Huntington, either alone or in combination, fail to teach at least (1) the management server determining whether data to be written is high priority or low priority data and (2) the management server prioritizing assignment of storage areas based upon the priority of the storage area where unused and in-use areas in the low-priority storage area and

unused areas in the high-priority storage areas are reassigned in order to increase the size of the storage area available for reassignment.

Applicants submit that Shillo, Naik, and Huntington fail to teach or suggest at least "said management server judges whether data to be written in said storage apparatuses is the high-priority data or the low-priority data on the basis of a write request of data from one of said plurality of servers and keeps a judgment result and position information of storage areas in which said data is written" as recited in claim 1. The Office Action relies upon Naik, paragraphs 0063, 0064, and 0069 to teach or suggest this feature of claim 1. However, Applicants submit that the cited portions of Naik fail to teach this feature of claim 1.

Applicants submit that the cited portions of Naik merely describe managing storage access bandwidth. For example, paragraphs 0063 and 0064 of Naik describe the Resource Management and Reservation System (RMRS) creating a tentative plan for allocating available storage bandwidth among multiple applications, taking into account the priority of the applications, the normal storage access workload of the applications, and provisioning for urgent requests. Thus, in Naik, different applications may have different priority access to storage bandwidth and access to the storage bandwidth is allocated according to these priorities. Thus, Applicants submit that Naik fails to teach a management server determining whether the data to be written to the storage apparatuses is high-priority or low-priority data as recited in claim 1. Naik is silent as to classifying data storage areas on the storage apparatuses as high-priority or low-priority data. Thus, the combination of Shillo, Naik, and Huntington fails to teach or suggest this feature of claim 1.

Applicants further submit that the combination of Shillo, Naik, and Huntington fail to teach or suggest "wherein upon receiving an area assignment instruction, the management server judges whether (i) a size of the unassigned areas exceeds a size of the storage areas specified by said area assignment instruction, (ii) a total size of the unassigned areas and unused areas exceeds the size of the storage areas specified by said area assignment instruction, or (iii) a total size of the unassigned areas, the unused areas and storage areas having stored low-priority data exceeds the size of the storage areas specified by said area assignment instruction, and when the condition (iii) is met, said management server releases at least part of storage areas in which

the low-priority data is stored, of the assignment areas of other servers as unassigned areas and assigns at least areas to one of said plurality of servers" as recited in claim 1. The Office Action relies upon Huntington, Fig. 5, and paragraphs 0062, 0063, and 0069 to teach this feature of claim 1. However, the cited portions of Huntington merely describe the order in which memory is allocated in response to a request for storage space. The segment cache subsystem of Huntington first allocates fixed increments of storage space from a free section list and when additional space is needed the subsystem may release archived block sections or aged or low priority segments.

In contrast, the management server recited in claim 1 advantageously addresses requests for storage space by allocating storage in the following order: (1) unused areas in low-priority storage area, (2) in-use in low priority storage area, and (3) unused areas in high-priority storage area, thereby maximizing the amount of free space available for high priority data while still preserving low priority data until the space is absolutely necessary to be released and releasing low priority data in favor of allocating unused areas in storage areas for high priority data. Huntington is silent as to strategically reallocating unused and low priority storage areas prior to allocating unused high priority storage areas as recited in claim 1. Thus, the combination of Shillo, Naik, and Huntington also fails to teach or suggest this feature of claim 1.

Therefore, Applicants submit that claim 1 is allowable over the combination of Shillo, Naik, and Huntington for at least the reasons provided. Independent claims 7 and 13 should be allowable for similar reasons as claim 1. Furthermore, dependent claims 2 and 4, which depend from claim 1, claims 8 and 10, which depend from claim 7, and claims 14 and 16, which depend from claim 13, should also be allowable for at least the reasons provided. Newly added claims 21-26 should also be in condition for allowance at least due to their dependence from claims 1, 7, and 13.

Claims 5, 6, 11, 12, 17 and 18

Claims 5, 6, 11, 12, 17 and 18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Shillo in view of Naik and further view of Huntington and in further view of Karpoff.

Claim 5, 6, 11, 12, 17 and 18 depend from claims 1, 7, and 13, respectively, and the rejection of claims 5, 6, 11, 12, 17 and 18 is premised on the assertion that the combination of Shillo, Naik, and Huntington discloses or suggests the features recited in claims 1, 7, and 13 and Karpoff discloses or suggests the remaining features of claims 1, 7, and 13. As discussed above, however, the combination of Shillo, Naik, and Huntington does not disclose or suggest all of the features recited in claims 1, 7, and 13. Applicants submit that Karpoff provides no teaching or suggestion that would remedy this deficiency. Therefore, the rejection is based on a flawed premise and cannot be maintained. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 5, 6, 11, 12, 17 and 18.

Claims 19 and 20

Claims 19 and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Shillo in view of Naik and in view of Huntington and in further view of Karpoff and in further in view of Honmura.

Claim 19 and 20 depend from claim 1, respectively, and the rejection of claim 1 is premised on the assertion that the combination of Shillo, Naik, and Huntington discloses or suggests the features recited in claim 1 and that Karpoff and Honmura disclose or suggest the remaining features of claim 1. As discussed above, however, the combination of Shillo, Naik, and Huntington does not disclose or suggest all of the features recited in claim 1. Applicants submit that Karpoff and Honmura provide no teaching or suggestion that would remedy this deficiency. Therefore, the rejection is based on a flawed premise and cannot be maintained. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 19 and 20.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 858-350-6100.

Respectfully submitted,

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Attachments
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